U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

August 6, 2015

Exemption No. 12359
Regulatory Docket No. FAA–2015–1806

Mr. Henry H. Perritt, Jr.
Attorney at Law
1131 Carol Lane
Glencoe, IL 60022

Dear Mr. Perritt:

This letter is to inform you that we have granted your request for exemption. It transmits our decision, explains its basis, and gives you the conditions and limitations of the exemption, including the date it ends.

By letter dated May 11, 2015, you petitioned the Federal Aviation Administration (FAA) on behalf of CD Aero Services, LLC (hereinafter petitioner or operator) for an exemption. The petitioner requested to operate an unmanned aircraft system (UAS) to conduct aerial data collection and training[1].

See Appendix A for the petition submitted to the FAA describing the proposed operations and the regulations that the petitioner seeks an exemption.

The FAA has determined that good cause exists for not publishing a summary of the petition in the Federal Register because the requested exemption would not set a precedent, and any delay in acting on this petition would be detrimental to the petitioner. However, the FAA received eleven comments in support of the petition made to the docket.

[1] The petitioner also requested authority to conduct UAS training. At this time, the FAA is unable to authorize UAS operations for training until a further assessment is completed. When the FAA completes its review, we will proceed accordingly and no further action will be required by the petitioner. However, the petitioner is permitted to train its own pilot in commands and visual observers in accordance with condition no. 14 and the other conditions and limitations in this exemption.

Airworthiness Certification

The UAS proposed by the petitioner are the DJI Phantom, DJI Spreading Wings S1000+, and DJI Inspire 1.

The petitioner requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*. In accordance with the statutory criteria provided in Section 333 of Public Law 112−95 in reference to 49 U.S.C. § 44704, and in consideration of the size, weight, speed, and limited operating area associated with the aircraft and its operation, the Secretary of Transportation has determined that this aircraft meets the conditions of Section 333. Therefore, the FAA finds that the requested relief from 14 CFR part 21, *Certification procedures for products and parts, Subpart H—Airworthiness Certificates*, and any associated noise certification and testing requirements of part 36, is not necessary.

The Basis for Our Decision

You have requested to use a UAS for aerial data collection[2]. The FAA has issued grants of exemption in circumstances similar in all material respects to those presented in your petition. In Grants of Exemption Nos. 11062 to Astraeus Aerial (*see* Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (*see* Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (*see* Docket No. FAA−2014−0382), and 11213 to Aeryon Labs, Inc. (*see* Docket No. FAA−2014−0642), the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the petitioner and carrying no passengers or crew, rather than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

Having reviewed your reasons for requesting an exemption, I find that—

- They are similar in all material respects to relief previously requested in Grant of Exemption Nos. 11062, 11109, 11112, and 11213;
- The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, and 11213 also apply to the situation you present; and
- A grant of exemption is in the public interest.

[2] Aerial data collection includes any remote sensing and measuring by an instrument(s) aboard the UA. Examples include imagery (photography, video, infrared, etc.), electronic measurement (precision surveying, RF analysis, etc.), chemical measurement (particulate measurement, etc.), or any other gathering of data by instruments aboard the UA.

Our Decision

In consideration of the foregoing, I find that a grant of exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 106(f), 40113, and 44701, delegated to me by the Administrator, CD Aero Services, LLC is granted an exemption from 14 CFR §§ 61.23(a) and (c), 61.101(e)(4) and (5), 61.113(a), 61.315(a), 91.7(a), 91.119(c), 91.121, 91.151(a)(1), 91.405(a), 91.407(a)(1), 91.409(a)(1) and (2), and 91.417(a) and (b), to the extent necessary to allow the petitioner to operate a UAS to perform aerial data collection. This exemption is subject to the conditions and limitations listed below.

Conditions and Limitations

In this grant of exemption, CD Aero Services, LLC is hereafter referred to as the operator.

Failure to comply with any of the conditions and limitations of this grant of exemption will be grounds for the immediate suspension or rescission of this exemption.

1. Operations authorized by this grant of exemption are limited to the DJI Phantom, DJI Spreading Wings S1000+, and DJI Inspire 1when weighing less than 55 pounds including payload. Proposed operations of any other aircraft will require a new petition or a petition to amend this exemption.

2. Operations for the purpose of closed-set motion picture and television filming are not permitted.

3. The UA may not be operated at a speed exceeding 87 knots (100 miles per hour). The exemption holder may use either groundspeed or calibrated airspeed to determine compliance with the 87 knot speed restriction. In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

4. The UA must be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude must be reported in feet AGL.

5. The UA must be operated within visual line of sight (VLOS) of the PIC at all times. This requires the PIC to be able to use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.

6. All operations must utilize a visual observer (VO). The UA must be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC must be able to communicate verbally at all times; electronic messaging or texting is not permitted during flight operations. The PIC

must be designated before the flight and cannot transfer his or her designation for the duration of the flight. The PIC must ensure that the VO can perform the duties required of the VO.

7. This exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations stated in this grant of exemption, are hereinafter referred to as the operating documents. The operating documents must be accessible during UAS operations and made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations herein take precedence and must be followed. Otherwise, the operator must follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents. It is the operator's responsibility to track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request. The operator must also present updated and revised documents if it petitions for extension or amendment to this grant of exemption. If the operator determines that any update or revision would affect the basis upon which the FAA granted this exemption, then the operator must petition for an amendment to its grant of exemption. The FAA's UAS Integration Office (AFS−80) may be contacted if questions arise regarding updates or revisions to the operating documents.

8. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g., replacement of a flight critical component, must undergo a functional test flight prior to conducting further operations under this exemption. Functional test flights may only be conducted by a PIC with a VO and must remain at least 500 feet from other people. The functional test flight must be conducted in such a manner so as to not pose an undue hazard to persons and property.

9. The operator is responsible for maintaining and inspecting the UAS to ensure that it is in a condition for safe operation.

10. Prior to each flight, the PIC must conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection must account for all potential discrepancies, e.g., inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft is prohibited from operating until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.

11. The operator must follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.

12. Each UAS operated under this exemption must comply with all manufacturer safety bulletins.

13. Under this grant of exemption, a PIC must hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC must also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC must also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.

14. The operator may not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency must be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption are permitted under the terms of this exemption. However, training operations may only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered nonparticipants, and the PIC must operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

15. UAS operations may not be conducted during night, as defined in 14 CFR § 1.1. All operations must be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.

16. The UA may not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management must be made available to the Administrator or any law enforcement official upon request.

17. The UA may not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.

18. If the UAS loses communications or loses its GPS signal, the UA must return to a pre-determined location within the private or controlled-access property.

19. The PIC must abort the flight in the event of unpredicted obstacles or emergencies.

20. The PIC is prohibited from beginning a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.

21. Air Traffic Organization (ATO) Certificate of Waiver or Authorization (COA). All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder may apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the attached COA.

22. All aircraft operated in accordance with this exemption must be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N−Number) markings in accordance with 14 CFR part 45, Subpart C. Markings must be as large as practicable.

23. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 must be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating. These documents must be made available to the Administrator or any law enforcement official upon request.

24. The UA must remain clear and give way to all manned aviation operations and activities at all times.

25. The UAS may not be operated by the PIC from any moving device or vehicle.

26. All Flight operations must be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator must ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations must cease immediately in a manner ensuring the safety of nonparticipating persons; and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.

    The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under this exemption.

27. All operations shall be conducted over private or controlled-access property with permission from the property owner/controller or authorized representative.

Permission from property owner/controller or authorized representative will be obtained for each flight to be conducted.

28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA must be reported to the FAA's UAS Integration Office (AFS−80) within 24 hours. Accidents must be reported to the National Transportation Safety Board (NTSB) per instructions contained on the NTSB Web site: www.ntsb.gov.

If this exemption permits operations for the purpose of closed-set motion picture and television filming and production, the following additional conditions and limitations apply.

29. The operator must have a motion picture and television operations manual (MPTOM) as documented in this grant of exemption.

30. At least 3 days before aerial filming, the operator of the UAS affected by this exemption must submit a written Plan of Activities to the local Flight Standards District Office (FSDO) with jurisdiction over the area of proposed filming. The 3-day notification may be waived with the concurrence of the FSDO. The plan of activities must include at least the following:
    a. Dates and times for all flights;
    b. Name and phone number of the operator for the UAS aerial filming conducted under this grant of exemption;
    c. Name and phone number of the person responsible for the on-scene operation of the UAS;
    d. Make, model, and serial or N−Number of UAS to be used;
    e. Name and certificate number of UAS PICs involved in the aerial filming;
    f. A statement that the operator has obtained permission from property owners and/or local officials to conduct the filming production event; the list of those who gave permission must be made available to the inspector upon request;
    g. Signature of exemption holder or representative; and
    h. A description of the flight activity, including maps or diagrams of any area, city, town, county, and/or state over which filming will be conducted and the altitudes essential to accomplish the operation.

31. Flight operations may be conducted closer than 500 feet from participating persons consenting to be involved and necessary for the filming production, as specified in the exemption holder's MPTOM.

Unless otherwise specified in this grant of exemption, the UAS, the UAS PIC, and the UAS operations must comply with all applicable parts of 14 CFR including, but not limited to, parts 45, 47, 61, and 91.

This exemption terminates on August 31, 2017, unless sooner superseded or rescinded.

Sincerely,
/s/
John S. Duncan
Director, Flight Standards Service

Enclosures

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11 May 2015

Hon. Michael Huerta
Administrator
Federal Aviation Administration
U. S. Department of Transportation
Docket Management System
1200 New Jersey Ave., SE
Washington, DC 20590

Re: Summary Exemption Request under Section 333 of the FAA Reform Act and Part 11 of the Federal Aviation Regulations from certain parts of the FARs.

Dear Administrator Huerta:

Pursuant to Section 333 of the FAA Modernization and Reform Act of 2012 (the Reform Act) and 14 C.F.R. Part 11, CD Aero Service, LLC, a Wisconsin limited liability company doing business as Midwestern Helicopters (the "Petitioner"), hereby applies for a summary exemption from the listed Federal Aviation Regulations ("FARs") to allow it to operate small Unmanned Aircraft Systems ("sUAS") for training and aerial data collection, under the conditions and limitations set forth in this Petition.

The requested exemption would permit the operation of small, unmanned and relatively inexpensive sUAS under controlled conditions in airspace that is (1) limited, (2) predetermined, and (3) would provide safety enhancements to the already safe training and aerial imagery operations presently using manned helicopters and airplanes. Approval of this exemption would thereby enhance safety and fulfill the FAA Administrator's responsibilities to "…establish requirements for the safe operation of such aircraft systems in the national airspace system." Section 333(c) of the Reform Act.

The name and address of the applicant is:

CD Aero Services, LLC dba Midwestern Helicopters
Attn: Christopher Laskey
4810 76th Street,
Kenosha, WI 53142

Correspondence should be directed to:

Henry H. Perritt, Jr.
Attorney at Law
1131 Carol Lane
Glencoe, IL 60022
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(312) 504-5001

Regulations from which the exemption is requested:

14 CFR Part 21

14 C.F.R. § 45.23(b)

14 CFR § 61.3

14 C.F.R. § 91.7 (a)

14 CFR § 91.9 (b) (2)

14 C.F.R. § 91.103

14 C.F.R. § 91.109

14 C.F. R. § 91.119

14 C.F.R. § 91.121

14 CFR § 91.151 (a)

14 CFR § 91.203 (a) & (b)

14 CFR § 91.205(b)

14 CFR § 91.215

14 CFR § 91.405 (a)

14 CFR § 407 (a) (1)

14 CFR § 409 (a) (2)

14 CFR § 417 (a) & (b)

Appendix 1 describes the FARs from which an exemption is requested and summarizes the justification for each requested exemption.

The Petition is submitted to fulfill Congress' goal under Section 333(a) through (c) of the Reform Act, which directs the Secretary of Transportation to consider whether certain unmanned aircraft systems may operate safely in the national airspace system (NAS) before completion of the rulemaking required under Section 332 of the Reform Act. In making this determination, the Administrator must determine which types of UASs do not create a hazard to users of the NAS or the public or pose a threat to national security in light of the following:

- The UAS's size, weight, speed, and operational capability;
- Operation of the UAS in close proximity to airports and populated areas; and
- Operation of the UAS within visual line of sight of the operator.

Reform Act § 333 (a).

If the Administrator determines that such vehicles "may operate safely in the national airspace system, the Secretary shall establish requirements for the safe operation of such aircraft in the national airspace system." Id. § 333(c) (emphasis added).

The Secretary has delegated his aviation authority to the Administrator of the FAA.

The Federal Aviation Act expressly grants the FAA the authority to grant exemptions from its regulatory requirements for civil aircraft, a term defined under § 40101 of the Act, which includes sUASs. The Administrator may grant an exemption from a requirement of a regulation prescribed under subsection (a) or (b) of this section or any sections 44702-44716 of the Federal Aviation Act if Administrator finds the exemption in the public interest. 49 U.S.C. § 44701(f) See also 49 USC § 44711(a); 49 USC § 44704; 14 CFR §91.203 (a) (1).

CD Aero Services, LLC, doing business as Midwestern Helicopters. is a Wisconsin limited liability company (WI Department of Financial Institutions entity ID C061295). It is a provider of a broad range of helicopter services, from scenic tours to supplying a unique platform for aerial photography, aerial tours, aerial survey, crop pollination, helicopter rental, helicopter sales, helicopter rides at customer events,, heated helicopter storage, maintenance, pipeline patrol, powerline patrol, real estate survey, scenic tours, search and rescue, and helicopter rides.

It offers ground and flight instruction leading to private, commercial, ATP, CFI, and instrument helicopter ratings and gyroplane instruction leading to the gyroplane sport pilot rating.

Christopher J. Laskey owns CD Aero Services, LLC. He holds commercial helicopter, helicopter flight instructor, and private airplane single engine land ratings. He has been flying helicopters since 1966, has a total of about 6,000 hours. His experience includes over 1200 hours of "Huey" time in Vietnam with the 1st Cavalry Division. After his service in Vietnam, he taught military pilots for two years. His flight experience also includes work as a traffic helicopter pilot over Chicago, Ag work, TV photo work, multimedia film work, long line sling load work, police work, animal control, night surveillance work, medical evacuation. He also has experience flying sUAS for recreational purposes.

Few competing firms in the Midwest are as well-equipped as the Petitioner to offer sUAS training and commercial aerial data collection. Other flight schools and commercial helicopter and airplane operators in the Chicago metropolitan area are talking actively about offering sUAS services.

The Petitioner has been advised by counsel that this is not now permissible unless he obtains special permission from the FAA. Few if any of these operators have section 333 exceptions or other approvals. Some of them may be tempted to offer sUAS services outside any regulatory framework. If the Petitioner is shut out of this market because of its commitment to follow the law, while this irregular competition flourishes, the result will be bad for aviation safety.

Petitioner also notes and has read the congressional mandate in sections 332 and 333 of the FAA Revitalization and Reform Act of 2012 that the FAA move quickly to accommodate the economic and societal benefits that can result from widespread

deployment of sUAS technology. Accordingly, Petitioner applies for authorization under the Federal Aviation Act, and the FARs rules to undertake the following activities for commercial purposes. Unless the Petition is granted, Petitioner will be at a significant competitive advantage if it, as it prefers, complies with FAA policy.

Vehicles

The Petitioner will fly the following sUAS:

- DJI Phantom
- DJI Spreading Wings S1000-plus
- DJI Inspire-1

The DJI vehicles have built in capability to limit the height they fly above the ground, to limit the radius of the distance the fly from the operator, and to exclude them from class B, C, and D airspace. The vehicles also have the built-in capability to return to the launching point if the wireless control link is interrupted or if the operator attempts to exceed any of the height, radius, or airspace limitations programmed into it.

The FAA has granted section 333 exemptions for both of these vehicles, in First Flight Photography, LLC, Exemption No. 11260, Regulatory Docket No. FAA−2014−0736 (as

Appendix 2 provides specifications for the vehicles.

Flight profiles

The Petitioner will program its aircraft so that they will not fly above 400 feet above ground level, or more than 1500 feet away from the operator. The operator will carefully preflight the vehicle before each mission to assure that its compass and GPS system are properly calibrated and that the return-to-home feature, altitude, and radius limitations work.

The operator will operate its vehicles on aerial data collection, aerial photography and videography, news gathering, training, and demonstration missions only under the following circumstances:

1. The UA will not be operated at a speed exceeding 87 knots (100 miles per hour). In no case will the UA be operated at airspeeds greater than the maximum UA operating airspeed recommended by the aircraft manufacturer.

2. The UA will be operated at an altitude of no more than 400 feet above ground level (AGL). Altitude will be reported in feet AGL.
3. The UA will be operated within visual line of sight (VLOS) of the PIC at all times. The PIC will use human vision unaided by any device other than corrective lenses, as specified on the PIC's FAA-issued airman medical certificate or U.S. driver's license.
4. All operations will utilize a visual observer (VO). The UA will be operated within the visual line of sight (VLOS) of the PIC and VO at all times. The VO may be used to satisfy the VLOS requirement as long as the PIC always maintains VLOS capability. The VO and PIC will be able to communicate orally at all times; electronic messaging or texting will not occur during flight operations. The PIC will be designated before the flight and will not transfer his or her designation for the duration of the flight. The PIC will ensure that the VO can perform the duties required of the VO.
5. The requested exemption and all documents needed to operate the UAS and conduct its operations in accordance with the conditions and limitations of the requested grant of exemption, are hereinafter referred to as the operating documents. The operating documents will be accessible during UAS operations and will be made available to the Administrator upon request. If a discrepancy exists between the conditions and limitations in this exemption and the procedures outlined in the operating documents, the conditions and limitations will take precedence and be followed. Otherwise, the operator will follow the procedures as outlined in its operating documents. The operator may update or revise its operating documents, and track such revisions and present updated and revised documents to the Administrator or any law enforcement official upon request.
6. If the operator determines that any update or revision would affect the basis upon which the FAA granted the requested exemption, the operator will petition for an amendment to its grant of exemption.
7. Any UAS that has undergone maintenance or alterations that affect the UAS operation or flight characteristics, e.g. replacement of a flight critical component, will undergo a functional test flight prior to conducting further operations under the requested exemption. Functional test flights will only be conducted by a PIC with a VO and will remain at least 500 feet from other people. The functional test

flight will be conducted in such a manner so as not to pose an undue hazard to persons and property.

8. The operator is will maintain and inspect the UAS to ensure that it is in a condition for safe operation.
9. Prior to each flight, the PIC will conduct a pre-flight inspection and determine the UAS is in a condition for safe flight. The pre-flight inspection will account for all potential discrepancies, e.g. inoperable components, items, or equipment. If the inspection reveals a condition that affects the safe operation of the UAS, the aircraft will not be operated until the necessary maintenance has been performed and the UAS is found to be in a condition for safe flight.
10. The operator will follow the UAS manufacturer's maintenance, overhaul, replacement, inspection, and life limit requirements for the aircraft and aircraft components.
11. Each UAS operated under the requested exemption will comply with all manufacturer safety bulletins.
12. All PICs will hold either an airline transport, commercial, private, recreational, or sport pilot certificate. The PIC will also hold a current FAA airman medical certificate or a valid U.S. driver's license issued by a state, the District of Columbia, Puerto Rico, a territory, a possession, or the Federal government. The PIC will also meet the flight review requirements specified in 14 CFR § 61.56 in an aircraft in which the PIC is rated on his or her pilot certificate.
13. The operator will not permit any PIC to operate unless the PIC demonstrates the ability to safely operate the UAS in a manner consistent with how the UAS will be operated under this exemption, including evasive and emergency maneuvers and maintaining appropriate distances from persons, vessels, vehicles and structures. PIC qualification flight hours and currency will be logged in a manner consistent with 14 CFR § 61.51(b). Flights for the purposes of training the operator's PICs and VOs (training, proficiency, and experience-building) and determining the PIC's ability safely to operate the UAS in a manner consistent with how the UAS will be operated under this exemption will occur under the terms of the requested exemption. Training operations will only be conducted during dedicated training sessions. During training, proficiency, and experience-building flights, all persons not essential for flight operations are considered

nonparticipants, and the PIC will operate the UA with appropriate distance from nonparticipants in accordance with 14 CFR § 91.119.

14. UAS operations will not be conducted during night, as defined in 14 CFR § 1.1. All operations will be conducted under visual meteorological conditions (VMC). Flights under special visual flight rules (SVFR) are not authorized.
15. The UA will not operate within 5 nautical miles of an airport reference point (ARP) as denoted in the current FAA Airport/Facility Directory (AFD) or for airports not denoted with an ARP, the center of the airport symbol as denoted on the current FAA-published aeronautical chart, unless a letter of agreement with that airport's management is obtained or otherwise permitted by a COA issued to the exemption holder. The letter of agreement with the airport management will be made available to the Administrator or any law enforcement official upon request.
16. The UA will not be operated less than 500 feet below or less than 2,000 feet horizontally from a cloud or when visibility is less than 3 statute miles from the PIC.
17. If the UAS loses communications or loses its GPS signal, the operator will cause the UA to return to a predetermined location within the private or controlled-access property.
18. The PIC will abort the flight in the event of unpredicted obstacles or emergencies.
19. The PIC will not begin a flight unless (considering wind and forecast weather conditions) there is enough available power for the UA to conduct the intended operation and to operate after that for at least five minutes or with the reserve power recommended by the manufacturer if greater.
20. All operations shall be conducted in accordance with an ATO-issued COA. The exemption holder will apply for a new or amended COA if it intends to conduct operations that cannot be conducted under the terms of the COA attached to the requested exemption.
21. All aircraft operated in accordance with this exemption will be identified by serial number, registered in accordance with 14 CFR part 47, and have identification (N-Number) markings in accordance with 14 CFR part 45, Subpart C. Markings will be as large as practicable.

22. Documents used by the operator to ensure the safe operation and flight of the UAS and any documents required under 14 CFR §§ 91.9 and 91.203 will be available to the PIC at the Ground Control Station of the UAS any time the aircraft is operating.
23. These documents will be made available to the Administrator or any law enforcement official upon request.
24. The UA will remain clear and give way to all manned aviation operations and activities at all times.
25. The UAS will not be operated by the PIC from any moving device or vehicle.
26. All Flight operations will be conducted at least 500 feet from all nonparticipating persons, vessels, vehicles, and structures unless:
    a. Barriers or structures are present that sufficiently protect nonparticipating persons from the UA and/or debris in the event of an accident. The operator will ensure that nonparticipating persons remain under such protection. If a situation arises where nonparticipating persons leave such protection and are within 500 feet of the UA, flight operations will cease immediately in a manner ensuring the safety of nonparticipating persons' and
    b. The owner/controller of any vessels, vehicles or structures has granted permission for operating closer to those objects and the PIC has made a safety assessment of the risk of operating closer to those objects and determined that it does not present an undue hazard.
27. The PIC, VO, operator trainees or essential persons are not considered nonparticipating persons under the requested exemption.
28. Any incident, accident, or flight operation that transgresses the lateral or vertical boundaries of the operational area as defined by the applicable COA will be reported to the FAA's UAS Integration Office (AFS-80) within 24 hours. Accidents will be reported to the National Transportation Safety Board (NTSB) according to instructions contained on the NTSB Web site: www.ntsb.gov.
29. Further to protect the interests of the operators of other aircraft and of persons and property on the ground, Petitioner will maintain liability insurance coverage for all of its sUAS operations.

The Petitioner's proposed operations satisfy the criteria provided in Section 333 of the Reform Act relating to size, weight, speed, operating capabilities, proximity to airports

and populated areas and operation within visual line of sight and national security. The Petition justifies grant of the requested exemptions allow the Petitioner to obtain aerial photography with its sUAS.

Granting the petition would be in the public interest because:

1. The Congress of the United States has determined that early accommodation of sUAS into the National Airspace System advances the public interest. The Committee Report leading the House to adopted H.R. 658 said:

   "The successful integration of unmanned aircraft systems (UAS) into the National Airspace System (NAS) can support more than 23,000 high-paying jobs in the United States. . . . The absence of a plan to integrate UASs into the NAS is a barrier to such job creation . . . ."[1]

   Granting the Petition represents a step toward such integration, in the absence of a comprehensive regulatory regime for sUAS, and thus would serve the Congressional goal and the public interest.

2. Granting the Petition would facilitate the creation, display, and public distribution of art, long recognized as advancing the public interest. They are at the core of the activities that the First Amendment to the United States Constitution seeks to promote and to protect from governmental restrictions.

   Creative photography and video art fall well within the First Amendment's protections. "Entertainment, as well as political and ideological speech, is protected; motion pictures, programs broadcast by radio and television, and live entertainment, such as musical and dramatic works fall within the First Amendment guarantee. "[2]

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[1] H. R. Rep. 112-29 on H.R. 658, 112th Cong., 1st Sess. at 116. The House-Senate Conference Committee on the FAA Modernization and Reform Act of 2012 recommended amendments to H.R. 658 in lieu of amendments adopted by the Senate. Conference Report to Accompany H.R. 658, H.R. Rep. 112-381, 112th Cong., 2d Sess., at p. 1 (Feb. 1, 2012).

[2] Schad v. Borough of Mount Ephraim, 452 U.S. 61, 65 (1981); White v. City of Sparks, 500 F.3d 953, 956 (9th Cir. 2007) (holding that self-expression through painting is

3. Granting the Petition would enable new forms of news coverage, enabling the public to know about and to understand newsworthy events, an activity similarly within the core of First Amendment protections. [3]
4. Granting the petition would enable Petitioner to demonstrate the commercial viability of creating art and gathering news with new aeronautical technology Commercial creative art is protected as well as non-commercial art.[4] The Patents and Copyrights Clause of the United States Constitution and the copyright statute's protection of visual art and audiovisual works embody the proposition that more creative effort with respect to these kinds of work will be exerted when the creators are allowed to be paid for their works, thus increasing the production of artistic works.

   Granting the petition will allow the petitioner to respond to economic incentives to increase its creative production. The result will be an increase in the stock of artistic photography, including video for public enjoyment.

   A significant part of the Petitioner's activities involve capturing and disseminating visual representations of newsworthy events. Receiving compensation for these newsgathering activities using traditional technologies

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protected by the First Amendment; rejecting city's argument that protection requires a political message); Hoffman v. Capital Cities/ABC, Inc., 255 F.3d 1180 (9th Cir. 2001) (reversing judgment for plaintiff; use of photograph of actor as part of fashion article was protected by First Amendment despite commercial purpose); Edme v. Internet Brands, Inc., 968 F. Supp.2d 519, 529-530 (E.D. N.Y. 2013) (denying summary judgment on statutory right of publicity claim; "newsworthy" broadly construed to allow public to benefit from visual images); Hill v. Public Advocate of the United States, ___ F. Supp.2d ___ , Civil Action No. 12–cv–02550–WYD–KMT, 2014 WL 1293524 (D. Colo. Mar. 31, 2014) (holding that photograph of gay marriage was within First Amendment protection despite its use for political purposes; discussing how access to photograph advances the public interest).

[3] Glik v. Cunniffe, 655 F.3d 78, 83-84 (1st Cir. 2011) (citing cases holding that news photography is will with First Amendment protection and that protection extends to ordinary citizens as well as reporters; affirming denial of immunity to police officers in section 1983 suit by citizen who was arrested for using cellphone camera to photograph arrest).

[4] White, 500 F.3d at 956-957.

incentivizes Petitioner, resulting in greater output of news. The new technologies embodied in sUAS enable different perspectives on the news not easily obtainable by traditional means. Allowing Petitioner to be compensated for using the new technologies will provide an incentive for it to intensify its collection and dissemination efforts.

The rules from which Petitioner seeks exemption artificially and irrationally limit the effective use of new technologies to enhance news gathering, thereby subverting the public interest.

5. Granting the Petition will fulfill the FAA's own declaration that encouraging new aviation technologies advances the public interest. The FAA itself has recognized the public interest in its role of "Encouraging and developing civil aeronautics, including new aviation technology."[5] Granting the Petition will enhance FAA fulfillment of that commitment, thereby serving the public interest. Air commerce flourishes in the United States because of the rapid pace of innovation in aeronautical and associated technologies, followed by their commercialization and their introduction of the marketplace. The drone technology that the Petitioner uses exemplifies the latest innovative leap forward in aeronautical technology. Preventing it from using this in air commerce subverts achievement of the goal.
6. Granting the Petition will fulfill the Congressional determination that integrating sUAS technology into the NAS serves the public interest. Section 330 of the FAA Modernization and Reform Act of 2012, specifically recognizes the advantages to air commerce obtainable from the deployment of sUAS technologies. It mandated several steps by the FAA to accelerate the availability of these technologies in the National Airspace System, thereby representing a congressional determination that the public interest is served by making these technologies more widely available at the earliest practicable date. The Petition represents a way for the FAA to move incrementally, while still satisfying its congressional mandate and meeting its obligation to enhance the public interest by making new technologies available by allowing the use of sUAS technologies

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[5] FAA, Safety: The Foundation of Everything We Do, http://www.faa.gov/about/safety_efficiency/.

in a manner that protects the public and the rest of the aviation community from significant risk.

The commercial activities by Petitioner proposed in the Petition represent contributions to new forms of air commerce, thereby fulfilling the FAA's statutory mandate under the 2012 Act.

7. Granting the Petition will enhance aviation safety, thereby advancing the public interest. The Petitioner's flight training activities proposed in the Petition will serve the public interest because they will represent a pathway, not yet widely available, for aspiring sUAS operators to obtain formal training in a context that links them to the safety-conscious culture of manned aviation. This will produce more careful, knowledgeable, and skilled sUAS operators, who will understand and avoid risks to other aircraft and to persons or property on the ground.
8. The Petitioner has committed itself in the Petition to safety practices that reduce or eliminate hazards to aircraft in the National Airspace System and to persons and property on the ground. Many others are flying sUAS without regard to these hazards. Granting the Petition will offer the Petitioner up as an example of how the FAA is willing to accommodate the new technology when it is constrained by appropriate limitations to enhance safety. It will also allow the Petitioner to be a role model for safe commercial sUAS operations.

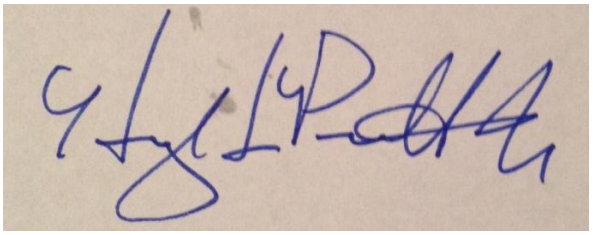
   Users of the National Airspace System are confronted by mushrooming threats from sUAS flown in defiance of the FAA's ban. Unless the FAA shows some flexibility to accommodate lawful and safe operation of sUAS for legitimate commercial purposes, the level of defiance will increase, intensifying the hazards to manned aircraft and to persons and property on the ground.

The Petition to use a UAS for aerial data collection and its proposed limitations are similar in all material respects to those approved by the FAA in Grants of Exemption Nos. 11062 to Astraeus Aerial (see Docket No. FAA−2014−0352), 11109 to Clayco, Inc. (see Docket No. FAA−2014−0507), 11112 to VDOS Global, LLC (see Docket No. FAA−2014−0382), 11213 to Aeryon Labs, Inc. (see Docket No. FAA−2014−0642) and 11310 to Colin Hinkle (see Docket No. FAA-2014-0608). In those grants the FAA found that the enhanced safety achieved using an unmanned aircraft (UA) with the specifications described by the Petitioner and carrying no passengers or crew, rather

than a manned aircraft of significantly greater proportions, carrying crew in addition to flammable fuel, gives the FAA good cause to find that the UAS operation enabled by this exemption is in the public interest.

The reasons stated by the FAA for granting Exemption Nos. 11062, 11109, 11112, 11213, and 11310 also apply to the situation presented by this Petition.

Respectfully submitted,



Henry H. Perritt, Jr.
Counsel for
CD Aero Services, LLC.

Appendix 1

FAR section	Subject	Justification
14 CFR § 45.23(b)	Requirement to display registration number on vehicle	Insufficient space on vehicle
14 CFR Part 21	Aircraft certification requirements and procedures	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 61.3	Requirement for pilot certificate	Part 61 requirements designed for manned aircraft, not sUAS; petition describes training for sUAS operator
14 CFR § 91.7 (a)	Airworthiness requirement	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 91.9 (b) (2)	Requirement for manual to be available in the cockpit	No one aboard to read manual
14 CFR § 91.103(b)	Requirement for crew members to be onboard	Unmanned vehicle
14 CFR § 91.109	Requirement for dual controls during flight instruction	No one aboard to operate controls
14 CFR § 91.119	Minimum altitudes for safe flight	Safety requires operation below these altitudes
14 CFR § 91.121	Altimeter settings	No one aboard to read altimeter
14 CFR § 91.151(a)	Fuel requirements	Vehicle does not use fuel
14 CFR § 91.203 (a) & (b)	Requirement for registration and airworthiness certificates to be onboard	No one aboard to read certificates
14 CFR § 91.205(b)	Cockpit instruments requirement	No one aboard to read instruments
14 CFR § 91.215	Transponder requirement	Vehicle has insufficient useful load; will be operated below ATC radar coverage
14 CFR § 91.405 (a)	Inspection requirements	Designed for manned aircraft; not suitable for

		off-the-shelf sUAS
14 CFR § 91.407(a) (1)	Inspection approval requirements	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 91.409 (a) (2)	Airworthiness inspection	Designed for manned aircraft; not suitable for off-the-shelf sUAS
14 CFR § 91.417 (a) & (b)	Maintenance records requirements	Designed for manned aircraft; not suitable for off-the-shelf sUAS

Appendix 2

Vehicle specifications

DJI Phantom

Basic Parameters	Operating Temperature -10°C ~ 50°C Power Consumption 3.12W Take-Off Weight <1200g Hovering Accuracy (GPS Mode) Vertical: 0.8m Horizontal: 2.5m Max Yaw Angular Velocity 200°/s Max Tilt Angle 45° Max Ascent / Descent Speed 6m/s Max Flight Velocity 10m/s Diagonal Distance (Motor Center To Motor Center) 350mm Phantom Prop Guard Weight(Single):18.7g Size(Single): Angle(155.0°) Radius(112.32mm) Whole Size with Four Prop Guards: 575.5mm
ESC Sound Introduction	Ready ♪1234567 Throttle Stick Is Not At Bottom BBBBBB… Input Signal Abnormal B———B———B… Input Voltage Abnormal BB—BB—BB—BB…
Charger & Battery Parameters	Charger AC Input 100-240V Charge Current

	1A/2A/3A Current Drain For Balancing 200mA Power 20W Battery Type LiPo
TX Parameters	Working Frequency 2.4GHz ISM Control Channels 7 Channels Communication Distance 1000m Receiver Sensitivity（1%PER） ＞-100dBm Power Consumption Of TX ＜20dBm Working Current /Voltage 52 mA@6V AA Battery 4 Required

DJI Inspire 1

Aircraft	**Model** T600 **Weight (Battery Included)** 2935 g **Hovering Accuracy (GPS Mode)** Vertical: 0.5 m Horizontal: 2.5 m **Max Angular Velocity** Pitch: 300°/s Yaw: 150°/s **Max Tilt Angle**

	35° **Max Ascent Speed** 5 m/s **Max Descent Speed** 4 m/s **Max Speed** 22 m/s (ATTI mode, no wind) **Max Flight Altitude** 4500 m **Max Wind Speed Resistance** 10 m/s **Max Flight Time** Approximately 18 minutes **Motor Model** DJI 3510 **Propeller Model** DJI 1345 **Indoor Hovering** Enabled by default **Operating Temperature Range** -10° to 40° C **Diagonal Distance** 559 to 581 mm **Dimensions** 438x451x301 mm
Gimbal	**Model** ZENMUSE X3 **Output Power (With Camera)** Static: 9 W In Motion: 11 W **Operating Current** Station: 750 mA Motion: 900 mA **Angular Vibration Range** ±0.03° **Mounting** Detachable **Controllable Range** Pitch: -90° to +30° Pan: ±320° **Mechanical Range** Pitch: -125° to +45° Pan: ±330° **Max Controllable Speed** Pitch: 120°/s Pan: 180°/s
Camera	**Name** X3 **Model**

	FC350 **Total Pixels** 12.76M **Effective Pixels** 12.4M **Image Max Size** 4000x3000 **ISO Range** 100-3200 (video) 100-1600 (photo) **Electronic Shutter Speed** 8s ─ 1/8000s **FOV (Field Of View)** 94° **CMOS** Sony EXMOR 1/2.3” **Lens** 20mm (35mm format equivalent)f/2.8 focus at ∞ 9 Elements in 9 groups Anti-distortion **Still Photography Modes** Single shoot Burst shooting: 3/5/7 frames Auto Exposure Bracketing (AEB): 3/5 bracketed frames at 0.7EV Bias Time-lapse **Video Recording Modes** UHD (4K): 4096x2160p24/25, 3840x2160p24/25/30 FHD: 1920x1080p24/25/30/48/50/60 HD: 1280x720p24/25/30/48/50/60 **Max Bitrate Of Video Storage** 60 Mbps **Supported File Formats** FAT32/exFAT Photo: JPEG, DNG Video: MP4/MOV (MPEG-4 AVC/H.264) **Supported SD Card Types** Micro SD Max capacity: 64 GB. Class 10 or UHS-1 rating required. **Operating Temperature Range** 0° to 40° C
Remote Controller	**Name** C1 **Operating Frequency** 922.7~927.7 MHz (Japan Only) 5.725~5.825 GHz 2.400~2.483 GHz **Transmitting Distance (Outdoor And Unobstructed)** 2 km **EIRP** 10dBm@900m, 13dBm@5.8G, 20dBm@2.4G

	Video Output Port USB, mini-HDMI **Power Supply** Built-in battery **Charging** DJI charger **Dual User Capability** Host-and-Slave connection **Mobile Device Holder** Tablet or Phone **Max Mobile Device Width** 170mm **Output Power** 9 W **Operating Temperature Range** -10° to 40° C **Storage Temperature Range** Less than 3 months: -20° to 45° C More than 3 months: 22° to 28° C **Charging Temperature Range** 0-40° C **Battery** 6000 mAh LiPo 2S
Charger	**Model** A14-100P1A **Voltage** 26.3 V **Rated Power** 100 W
Battery (Standard)	**Name** Intelligent Flight Battery **Model** TB47 **Capacity** 4500 mAh **Voltage** 22.2 V **Battery Type** LiPo 6S High voltage battery **Energy** 99.9 Wh **Net Weight** 570 g **Operating Temperature Range** -10° to 40° C **Storage Temperature Range** Less than 3 months: -20° to 45° C More than 3 months: 22° C to 28° C

	Charging Temperature Range 0° to 40° C **Max Charging Power** 180 W
Battery (Optional)	**Name** Intelligent Flight Battery **Model** TB48 **Capacity** 5700 mAh **Voltage** 22.8 V **Battery Type** LiPo 6S **Energy** 129.96 Wh **Net Weight** 670 g **Operating Temperature Range** -10° to 40° C **Storage Temperature Range** Less than 3 months: -20 to 45° C More than 3 months: 22° to 28° C **Charging Temperature Range** 0° to 40° C **Max Charging Power** 180 W
Vision Positioning	**Velocity Range** Below 8 m/s (2 m above ground) **Altitude Range** 5-500 cm **Operating Environment** Brightly lit (lux > 15) patterned surfaces **Operating Range** 0-250 cm
DJI Pilot App	**Mobile Device System Requirements** iOS 8.0 or later Android 4.1.2 or later **Supported Mobile Devices** * Compatible with iPhone 5s, iPhone 6, iPhone 6 Plus, iPad Air, iPad Air Wi-Fi + C Cellular, iPad mini 3, and iPad mini 3 Wi-Fi + Cellular. This app is optimized for iP * Samsung S5, Note 3, Sony Xperia Z3, Google Nexus 7 II, Google Nexus 9, Mi 3 *Support for additional Android devices available as testing and development cont

Frame	**Diagonal Wheelbase** 1045mm **Frame Arm Length** 386mm **Frame Arm Weight** **(Including Motor, ESC, Propeller)** 325g **Center Frame Diameter** 337.5mm **Center Frame Weight (With Landing Gear Mounting Base, Servos)** 1330g **Landing Gear Size** 460mm (Length) ×511mm (Width) ×305mm (Height), (Top width: 155 mm)
Motor	**Stator Size** 41×14mm **KV** 400rpm/V **Max Power** 500W **Weight(With Cooling Fan)** 158g
ESC	**Working Current** 40A **Working Voltage** 6S LiPo **Signal Frequency** 30Hz ~ 450Hz **Drive PWM Frequency** 8KHz **Weight(With Radiators)** 35g
Foldable Propeller (1552/1552R)	**Material** High strength performance engineered plastics **Size** 15×5.2inch **Weight** 13g
Flight Parameters	**Takeoff Weight** 6.0Kg ~ 11.0Kg **Total Weight** 4.2Kg **Power Battery** LiPo (6S、10000mAh~20000mAh、15C(Min)) **Max Power Consumption** 4000W **Hover Power Consumption**

	1500W (@9.5Kg Takeoff Weight) **Hover Time** 15min (@15000mAh & 9.5Kg Takeoff Weight) **Working Environment Temperature** -10 °C ~ +40 °C
Gain Value Settings	**For A2 Flight Controller** Basic: Roll 120%, Pitch 120%, Yaw 120% Attitude: Roll 170%, Pitch 170%, Vertical 120% **For WooKong-M Flight Controller** Basic: Roll 180%, Pitch 180%, Yaw 120% Attitude: Roll 180%, Pitch 180%, Vertical 120%